A UAS-ATC Simulation Test-Bed, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

The proposed solution is to create a high fidelity simulation environment that merges a UAS ground control station (GCS) simulator with an air traffic control (ATC) simulator. The UAS GCS station will have the capability of introducing a single UAS or multiple UASs simulator operated by a single and/or multiple UAS pilots into the ATC. This simulation will have the ability to simulate manned aircraft, among others in the airspace. It will allow the UAS GCS to communicate with ATC as well as other manned aircraft through the use of a Voice over Internet Protocol (VoIP) based intercom system. In addition to voice communications, a text-based chat system may also be utilized for communication among the different operators. Information regarding position and altitude for all aircraft will be available to the UAS GCS, ATC, as well as manned aircraft. The ATC simulator will be able to relay information regarding the position of other aircraft within 5nm horizontal and 1200 feet vertical separation to the UAS GCS through formatted messages.

Primary U.S. Work Locations and Key Partners
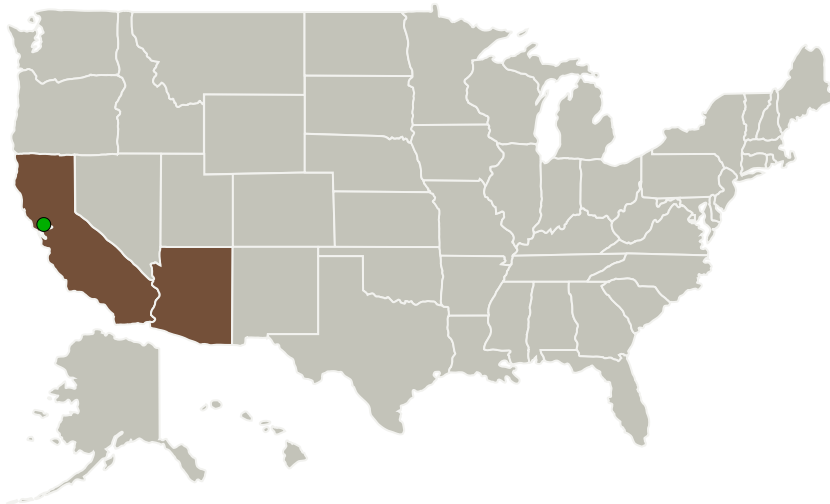
Organizations Performing Work	Role	Type	Location
Sandia Research Corporation	Lead Organization	Industry	Mesa, Arizona
⬤Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

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Table of Contents

Primary U.S. Work Locations	
Arizona	California

Project Transitions

▶ **February 2012:** Project Start

✔ **August 2012:** Closed out

Closeout Documentation:
- Final Summary Chart*(https://techport.nasa.gov/file/137930)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sandia Research Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management
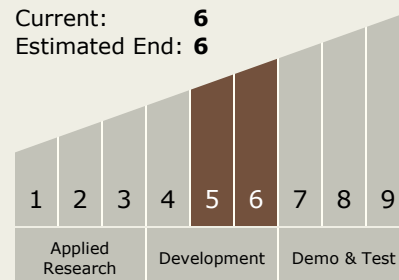
Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Steven M Shope

Technology Maturity (TRL)

Start: **5**
Current: **6**
Estimated End: **6**

1	2	3	4	5	6	7	8	9
Applied Research			Development			Demo & Test		

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  └ TX16.3 Traffic Management Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System